DOCUMENT RESUME

ED 195 327 PS 011 805

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TITLE Parent Child Development Centers: Long-Term and Short-Term Results.
INSTITUTION Educational Testing Service, Princeton, N.J.
SPONS AGENCY Administration for Children, Youth, and Families (DHEW), Washington, D.C.: Bank Street Coll. of Education, New York, N.Y.
PUB DATE [77]
CONTRACT 105-78-1302
NOTE 47p.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Child Development Centers; *Child Rearing; *Cognitive Development; Comparative Analysis; Federal Programs; Intelligence Quotient; Low Income Groups; Parent Education; *Program Effectiveness; *Program Evaluation; *Social Development; Young Children
IDENTIFIERS Alabama (Birmingham); Louisiana (New Orleans); *Parent Child Development Centers; Texas (Houston)

ABSTRACT

This paper describes the Parent Child Development Center (PCDC) model and related experimental programs at Birmingham, Houston and New Orleans and summarizes findings from data gathered during the first five years of program operation. Preliminary findings from data collected after 1975 are also reported. All PCDC programs share several common features which define the PCDC approach to parent education. PCDCs must actively engage low-income families with young children between the ages of birth and three years. They are multidimensional programs providing a range of information and experiences to parents on children's development, child-rearing techniques, health, nutrition, home management, adult skills in relating to organizations and institutions and community resource utilization, while offering social activities and social and health services. Established in 1970 by the Federal Government to help mothers raise socially and cognitively competent children, PCDCs were found to have positive short-term outcomes related to child corpetence. Preliminary analyses of data collected since 1975 at the Birmingham and New Orleans sites show that mean Stanford-Binet IQs in program and control groups were nearly identical by the time participating children reached 60 months of age. At both sites, IQ effects at the time of program graduation appeared to be weaker for later cohorts, but the cohort across group interactions were not significant. (Author/RH)

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Parent Child Development Centers: Long-term and Short-term Results

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The research reported here was supported by a number of grants from the Administration for Children, Youth, and Families to individual site sponsors and Bank Street College of Education, and a data analysis contract to ETS (HEW 105-78-1302).

The Parent Child Development Center Project developed in recognition of the importance of parents in the child's development of competence and in response to the priority placed on policies designed to benefit families and children. The Parent Child Development Center (PCDC) programs are programs for mothers and young children with goals similar to those of earlier compensatory education programs: to enhance the development of young children and to try to offset educational and occupational problems associated with poverty. The basic strategy of the PCDC programs is preventative in that helping parents become more effective child-rearing agents was the primary path taken to reaching the goals for children.

Background of PCDC Project

The PCDC Project was begun by the Office of Economic Opportunity (and later continued by the Office of Child Development, now known as the Administration for Children, Youth and Families) to formulate, develop, test and document potentially replicable program models. The model building or program development and evaluation phase was the first of a two-phase experimental strategy. Three PCDC programs were funded in 1970-71 in Birmingham, Houston, and New Orleans. In the first five years of Phase I, the programs were developed, and essential aspects of their theory and practice documented and their effects tested (Johnson, Kahn, and Leler, 1976; Lasater, Malone, & Ferguson, 1976; Blumenthal et al., 1976).

On the basis of positive and significant program effects, the second phase of the experiment was initiated in 1975. The three original

programs were to be replicated in different communities, with different populations to see whether the replications, too, would yield positive program effects. A national replication management organization housed in a private institution, Bank Street College of Education, was set up to guide, monitor, and document replication processes.

At the beginning of Phase II, each of the three PCDC programs was replicated once, Birmingham in Indianapolis, Houston in San Antonio and New Orleans in Detroit. A uniform cross-site evaluation was also planned for the second phase. However, the external evaluation was not funded concurrently with the replication management organization as originally planned. When Educational Testing Service was finally funded to develop an evaluation plan in 1978, it was a classic case of too little, too late. During the period from 1975 to 1978, research had continued at each site on a piecemeal basis, with scarcely enough money to support minimum data collection. As a result, the original research staffs were severly reduced. ETS was just beginning to design the follow-up and replication study when ACYF announced that the replication experiment was terminated because of lack of financial support. ETS was directed to use their remaining funds to analyze the data collected during the interim period. ACYF authorized limited data collection during the period from 1978 to 1980.

This paper reports on the preliminary analyses of the data from two sites (Birmingham and New Orleans) collected during the interim years from 1976 to 1980. More detailed and complete analyses of data from all three sites are still in process. Brief program descriptions of each PCDC

model are followed by a cursory summary of the Phase I (1970-1975) findings. For a thorough treatment of the first phase, the reader is referred to the five-year reports from each center cited above. A forthcoming monograph (Andrews, Blumenthal, Ferguson, Malone, Johnson, Kahn, Lasater, & Wallace) will provide a detailed description of these results from the first five years.

The PCDC Model and Programs

All PCDC programs share several common features which define the PCDC approach to parent education. PCDCs must actively engage low-income families with young children between the ages of birth and three years. They are multidimensional programs providing a range of information and experiences to parents on children's development, child-rearing techniques, health, nutrition, home management, adult skills in relating to organizations and institutions and community resource utilization, while offering social activities and social and health services.

The programs are interdisciplinary and are conducted in an atmosphere that is supportive and flexible, providing opportunities for participation in different ways and for using new information and skills. An important dimension in this milieu is the support group provided by the mothers themselves, facilitating interaction among mothers and opportunities for sharing and discussing experiences.

Because of the comprehensive nature of the programs, in which the mother is the central focus, additional benefits to the family are expected. Mothers are expected, for example, to increase their social and

family management skills and, subsequently, their feelings of self-worth, as well as their potential for future employment. Fathers are expected to increase their understanding of and involvement in the child-rearing task. Finally, benefits are expected to accrue to older children and to children born subsequently to participant families.

Although all PCDCs share these features and general goals, the three programs differ, by design, in their structure and educational delivery methods. For example, although the project's target years were birth to three years, each program could choose to begin at a different age. Two PCDCs begin when the child is two to three months old, while the third program (Houston) begins when the child is one year old. A range of participation intensities is represented, from a minimum of one and a half hours up to 40 hours per week. Further, different decisions were made regarding staffing patterns and program setting. Finally, and perhaps most important, each program was developed to be responsive to a different population. These idiosyncratic features shaped and grew out of the programs' early development and basic assumptions and continue to exert their influence in the replication phase. The need to be responsive to the participants and the community, coupled with an explicit research orientation created a dynamic interplay between research and practice from the start.

Birmingham Parent Child Development Center. In the Birmingham PCDC program, the primary teachers of mothers are other mothers--those who, through their experience and increasing responsibility in the center-based program, have developed their ability to share with other mothers what they have been learning.

The Birmingham center serves a group of black and white mothers and their children. Each mother-child dyad begins participation when the infant is about three months old and graduates when the child reaches 36 months of age. During the first 12 months, the mother-child dyads attend three half days each week. Then attendance increases to five half days as the mother learns more about teaching others. After 15 months of participation, the mother becomes eligible for teaching or Model Mother status, which requires five full days of attendance. The teaching mothers assume responsibility for creating developmentally facilitating experiences for the children in their care. By teaching others, the Model Mother improves her own skills and knowledge.

A small, permanent staff provides continuity of program content and activities, and trains and supervises the Model Mothers. Training is conducted in adult development, child development, observation and interviewing, and health and social service education.

The primary emphasis of the Birmingham program is on learning through experiences in three areas: experience in child care, experience as an individual learner, provided by elective classes and preparation for high school equivalency exams; and experiences as a member of the larger social system of the center, created by contributing to day-to-day program planning and operation and by participating on the Parent Advisory Board.

A variety of supportive services enables mothers to attend the center: transportation, a small stipend, lunch and snacks, child care for other children in the family, health care and social service assistance.

Houston Parent Child Development Center. The Houston PCDC program is a two year bilingual-bicultural program serving Mexican-American families. During the first program year, when the child is one, the program consists of approximately 30 weekly home visits, each lasting about one and a half hours. The home visitor is a worker from the community trained by the PCDC, who shares with the mother information concerning child growth and development, learning in the home environment, and the importance of the parenting role in the child's early years. During this first year the entire family is also invited to participate in four family workshops, usually held on a Sunday at the center.

From the time the child is 24 months until graduation, one year later, the child and the mother attend a center-based program four mornings a week. While the child is in a group with trained teachers; the mother is involved in groups with other mothers. The mothers' discussions and activities center around child learning, growth and development. This expands and builds on the first year's curriculum but with the additional benefit of mothers sharing with other mothers in a group setting. Other mothers' classes focus on home management, health and safety, topics such as budgeting and consumer buying, nutrition, first aid and childhood diseases. Bilingual (Spanish/English) language classes are offered to the mothers during their two-year involvement in the program.

Evening meetings are held twice monthly during the second program year and topics selected by program fathers are presented and explored. A Parent Advisory Committee (PAC), made up of elected parent representatives, helps to keep staff informed of changing community and family needs.

A supportive services component staffed by an experienced community worker, nurse, and aides helps facilitate the family's use of community resources during their enrollment. Transportation, lunch and a small stipend for additional expenses are offered in addition to the health and social services.

New Orleans Parent Child Development Center. In the New Orleans PCDC program, mothers enter the program when their infants are two months old and remain as participants until their children are three. The program offers parents a wide variety of educational experiences focusing on stimulating the mothers' development and on child rearing and child development. The program also offers a range of health and supportive social services.

The New Orleans PCDC serves black parents from an inner city area. Mothers come to the center twice a week for a total of six hours. On one of the mornings, the mothers spend an hour in child development discussion groups and two hours in a Parent-Child Laboratory. On the second morning, there is a variety of more adult-oriented activities including discussion of maternal and child health and nutrition, led by the nurse, and of adult family life and general concerns of everyday living, led by the social worker. Other activities include classes in home economics, field trips, arts and crafts, and special guest speakers; there is a Toy Workshop where mothers make educational toys for their children out of materials found in the home.

The parent education sessions are led by individuals from the same community and cultural background as the mothers and who, at the beginning

of the program, had no formal training in education or child development. These parent educators receive continuous in-service training.

All of the program parents are automatically members of the Parent Advisory Committee (PAC). The PAC functions as a feedback mechanism to the staff about the parents' feelings, needs and wishes. The major educational focus of the PAC is to provide parents with experience in leadership and group participation, which is an integral part of the program.

A variety of support services is provided to make it easier for the mothers to attend the program. These include: transportation, a small stipend, mid-morning snack and a program for the other children in the family.

Summary of Phase I Findings

The research design was based on the random assignment of participants to program and control groups with the major evaluation at the end of the program. It was an example of the Campbell and Stanley Type 6, post-test-only control-group design. A common evaluation strategy was adopted by all three PCDCs, although measures unique to each PCDC were also included in the test batteries. The common areas of measurement were program effects on the mothers' interaction with their children and the children's general intellectual and cognitive development. All three PCDCs administered measures at the annual test points and at graduation.

To measure program effects on the mothers, each PCDC developed its own mother-child interaction observation situations. Practical

concerns in the selection of measures to evaluate the development of program children dictated an emphasis on general intellectual functioning. The cognitive emphasis was not because this was the only major concern of the program, but because the available measures offered the greatest reliability and possibility of comparability with other research.

A summary across the three sites of the multivariate analyses of variance performed on the mother-child interaction data is presented in Table 1. Program mothers in all three sites scored significantly higher than control mothers on all multivariate dimensions of maternal behavior at 36 months. Examining the data as a function of the length of mothers' participation in the program reveals an interesting pattern. In Birmingham and New Orleans, both three-year programs, significant differences between program and control mothers began to emerge at 24 months.

Birmingham program mothers offered more comfort during mild stress and gave more instruction and praise in the teaching situation. New Orleans program mothers displayed significantly more sensitivity and acceptance toward and cooperation with their children. They also played with them and read to them more, showed them more affection, and talked to their children more than did control mothers. Program mothers in the two-year Houston program showed significant differences from control mothers at 24 months, after one year in the program, on two of the factors from Caldwell's HOME Inventory. After two years of participation, when their children were 36 months old, program mothers were significantly more affectionate, used less criticism, and encouraged their children's verbalization more than did control mothers.

Table 1

Summary of Multivariate Analyses of Variance in Each Site Comparing Program and Control Groups on Maternal Behavior Interaction in Observation Situations[a]

	AGE OF CHILD (MONTHS)			
SITE/SITUATION	2	12[b]	24	36
Birmingham:				
Nonsocial stress situation		<1	5.07**	
Waiting room situation			2.27	3.95**
Teaching situation			2.31**	5.18***
Houston:				
Teaching situation and HOME	Before program begins		<1	5.42***
New Orleans:				
Waiting room situation:				
Positive maternal behavior	1.1	2.0	3.5**	4.6**
Negative maternal behavior	1.2	1.6	1.7	2.6+

NOTE: Values in table are multivariate F ratios.

[a]No column entry means that data were not collected.

[b]Birmingham nonsocial stress situation was conducted at 13 months.

+$p \approx .06$

**$p < .01$

***$p < .001$

Analyses of data on children across sites did not yield so clear a pattern. As Table 2 indicates, there were a number of significant effects at graduation, a few at 24 months, and almost none before that. Birmingham program children interacted more positively with their mothers during the waiting room observation at 36 months and scored higher on the Concept Familiarity Index (CFI) and the Stanford-Binet. New Orleans program children obtained significantly higher scores on the Pacific Test Series, the Ammons Full-Range Picture Vocabulary Test, and the Stanford-Binet at graduation. The Cohort 2 program children in New Orleans showed greater evidence of program impact than did the pilot Cohort 1. Houston program children were only marginally superior to the control children on the CFI and the Stanford-Binet at graduation.

The preliminary analyses reported in the next section focus on two questions. First, to what extent do the differences at graduation tend to fade over time? And second, are the differences at graduation that were found with early cohorts replicated with later cohorts?

Length of Effects

Short-term PCDC influence on child competence is clearly demonstrated in the five-year reports. Data collected during the interim period now permit a limited investigation of how long-lasting these effects are; PCDC goal statements clearly indicate that long-term effects are anticipated. Unfortunately, the available data on long-term child effects were essentially limited to Stanford-Binet scores. Analyses of previous high-quality early-intervention projects (Lazar et. al., 1977), revealed that measurable impacts on IQ may be retained for three or four years

Table 2

SUMMARY OF ANALYSES ACROSS SITES COMPARING PERFORMANCE OF PROGRAM AND CONTROL CHILDREN ON MEASURES OF PROGRAM EFFECTS

	AGE OF CHILD (MONTHS)			
MEASURE	Before 12	12[a]	24[b]	At Graduation
Birmingham:				
Child behavior in interaction situations:				
Nonsocial stress		1.3	5.6***	
Waiting room			3.9*	4.6**
Teaching			1.4	<1
Bayley Mental Scale of Infant Development	6.3*	2.5	21.2***	
Concept Familiarity Index				2.8*
Stanford-Binet				17.8***
Houston:				
Child's verbal communication rating from MISS[c]	No Program		27.3***	1.1
Bayley Mental Scale of Infant Development	No Program	<1	8.77**	
Concept Familiarity Index	No Program			2.9[+]
Stanford-Binet	No Program			2.9[+]

Table 2 (continued)

MEASURE	AGE OF CHILD (MONTHS) Before 12	12[a]	24[b]	At Graduation
New Orleans:				
Uzgiris-Hunt Scales of Infant Ordinal Development	<1	<1	<1	
Bayley Mental Scale of Infant Development	<1	1.0	<1	
Pacific Test Series			<1	4.8*
Ammons Full-Range Picture Vocabulary Test				3.7*
Concept Familiarity Index				1.2
Stanford-Binet				4.0*

[a]Birmingham nonsocial stress situation was conducted at 13 months; the Bayley, at 10 months.

[b]In New Orleans the Uzgiris-Hunt was administered at 20 months.

[c]Control significantly higher than program at 24, not at 36.

$^{+}p < .10$

$^{*}p < .05$

$^{**}p < .01$

$^{***}p < .001$

after the end of the intervention, although longer-term effects on IQ were not found. However, Bronfenbrenner (1974), after reviewing several early intervention studies, noted that effects may be especially likely to be sustained longer when intervention begins very early and actively involves parents. Thus, even in the area of IQ, long-term effects two or three years after the intervention might reasonably be anticipated.

Birmingham Analyses

Sample. Unlike the New Orleans site, Birmingham did not have cohort designations because of the "trickle" recruitment model used there. In this model, mothers are recruited and enter the program continuously during the year rather than a group of mothers starting together at the same time. For analysis purposes, artificial cohort designations were created in which mothers and children entering the program in two adjacent calendar years were placed in the same cohort. Thus, mothers and children who began the program in 1972 or 1973 were considered to be in the first cohort, those entering in 1974 or 1975 were in the second cohort, etc. Although some data were collected on pilot mothers and children prior to 1972, these data are excluded for several reasons. Prior to 1972, there was not strict random assignment to groups, families were admitted with target children over six months of age, and the program itself was different in that it placed less emphasis on the mothers as the primary program participants. The decision to consider 1972 as the first true program year is consistent with the sample definition in the forthcoming monograph summarizing the initial five-year findings.

Graduation from the program ordinarily occurs when the target child reaches 36 months of age. Another consequence of the trickle recruitment model is that this graduation point may occur at any time during the year. Because this somewhat artificial graduation point may have occurred at a time that was particularly inconvenient for the mother, some mothers who had been very active participants would dropout a few months early. In order not to exclude these mothers, a program graduate was defined as anyone who was enrolled in the program for at least 28 months.

The Birmingham model was, by design, racially integrated. Because of problems in recruiting a sufficient number of white mothers, it was not possible to maintain a white control group. Random assignment was thus limited to black families, and results reported here include only those randomly assigned black families.

Stanford-Binet results. Results of the annual testing with the Stanford-Binet for the cohort entering in 1972 or 1973 are summarized in Table 3. The old (i.e., 1960) norms were used consistently. At this age range, IQs with the new 1972 norms would be about 10 points lower. Most columns in the table are self-explanatory. The columns labeled "Low" and "High" indicate the lowest and highest scores attained by any child in each group.

The trend in the means is clear. There are strong program-control differences at graduation (36 months), but these are nearly cut in half, becoming nonsignificant by 48 months and essentially disappearing by 60 months. It is interesting to note that the drop in absolute level of the scores occurs after 48 months, even though the program-control

Table 3

Stanford-Binet Scores for Birmingham

Cohort 1

MONTH OF TESTING	NUMBER PROG.	NUMBER CONTROL	MEAN PROG.	MEAN CONTROL	STD. DEVIATION (N-1) PROG.	STD. DEVIATION (N-1) CONTROL	LOW PROG.	LOW CONTROL	HIGH PROG.	HIGH CONTROL	T
30 M	54	31	97.9074	91.8065	9.1286	6.0960	77.0000	83.0000	129.0000	109.0000	3.3166*
36 M	55	46	98.3818	90.3478	10.0949	10.2723	79.0000	71.0000	128.0000	116.0000	3.9515*
48 M	52	44	99.5769	95.0000	11.7613	11.2870	76.0000	74.0000	125.0000	117.0000	1.9351
60 M	50	42	93.8800	93.3810	11.9483	8.6446	60.0000	76.0000	121.0000	116.0000	0.2255
72 M	37	36	93.5405	92.7500	11.8218	11.3525	70.0000	71.0000	130.0000	122.0000	0.2913
84 M	15	21	92.5333	91.0476	11.2050	11.8763	74.0000	67.0000	120.0000	114.0000	0.3787

*p < .01

comparison becomes nonsignificant at 48 months. This is due to the apparent increase in IQ for the control group between 36 and 48 months. This control group increase might be a testing artifact created by the different items that children of different ages may take with the Stanford-Binet; it could be related to some non-PCDC treatment that control children are receiving; or it might simply reflect some anomaly existing in this particular sample. A similar peak at 48 months was noted for the control group in the 1974-1975 cohort. In that group, the 36-month mean IQ was 93.4, the 48-month mean score was 96.9, and the 60-month score dropped down again to 91.1.

The research staff in Birmingham did an excellent job of following-up on program graduates. There was very minimal sample attrition through 60 months, although sample sizes did drop off somewhat beyond that point. As a check on possible differential attrition, a number of entry demographic characteristics of program and control children were compared. These comparisons were done separately for all children who had scores on the 36-month Stanford-Binet and for those children who had scores on the 72-month Stanford-Binet. As indicated in Tables 4 and 5, the background entry characteristics of the program and control samples were very similar both for the 36-month sample and for the families that were still left in the sample when the target child was 72 months old. Finding only one "significant" difference with $p < .05$ on 40 t tests is best explained by chance. Thus, the disappearance of the program-control differences on global IQ two years after program completion cannot be explained by changes in the sample. Furthermore, an additional analysis was conducted

Table 4

Entry Characteristics of Families in the Sample at Child-Age 36-Months

	C1 GRADS					C1 CNTLS							
	N	MEAN	SD(N-1)	MIN	MAX	N	MEAN	SD(N-1)	MIN	MAX	POOL SD	T	DF	P
MTR AGE	54	21.909	5.014	15.000	35.083	46	22.569	4.600	13.750	40.667	4.829	-0.68	98	0.497
SEX 1M2F	54	1.481	0.504	1.000	2.000	46	1.457	0.504	1.000	2.000	0.504	0.25	98	0.806
# O CHDN	54	1.019	1.354	0.0	6.000	46	1.130	1.240	0.0	4.000	1.306	-0.42	98	0.675
HEAD HS	53	2.189	0.810	1.000	3.000	45	2.244	0.773	1.000	3.000	0.793	-0.35	96	0.730
# RSDNTS	51	5.706	2.463	3.000	15.000	45	5.733	2.444	3.000	12.000	2.457	-0.05	94	0.957
# POSSNS	52	4.231	1.894	1.000	8.000	45	4.400	1.894	1.000	8.000	1.759	-0.47	95	0.638
HOMETYPE	53	1.189	0.395	1.000	2.000	45	1.222	0.420	1.000	2.000	0.407	-0.41	96	0.685
RMS/PRSN	53	1.081	0.512	0.400	3.000	45	1.114	0.501	0.417	2.667	0.507	-0.32	96	0.749
MOS ADDR	53	42.868	37.712	2.000	99.000	45	28.911	26.173	1.000	99.000	32.909	2.09	96	0.039
M EMPLYD	39	0.051	0.223	0.0	1.000	38	0.158	0.370	0.0	1.000	0.304	-1.54	75	0.129
A EMPLYD	47	0.660	0.479	0.0	1.000	42	0.810	0.397	0.0	1.000	0.442	-1.60	87	0.114
TOT INCM	54	3857.556	1851.630	852.000	9166.000	45	4227.911	3021.268	0.0	12220.000	2452.302	-0.75	97	0.456
INCM/PRN	51	787.301	446.257	150.545	1993.333	45	816.616	681.699	0.0	3055.000	568.730	-0.25	94	0.800
M EDUCTN	54	10.852	1.379	7.000	12.000	45	11.222	1.330	6.000	14.000	1.378	-1.32	97	0.189
F EDUCTN	16	10.722	2.947	0.0	14.000	17	11.353	1.730	7.000	14.000	2.434	-0.77	33	0.449
M R/VOTE	54	0.352	0.482	0.0	1.000	45	0.311	0.468	0.0	1.000	0.476	0.42	97	0.672
F R/VOTE	18	0.500	0.514	0.0	1.000	16	0.333	0.485	0.0	1.000	0.500	1.00	34	0.324
M D LISC	54	0.148	0.359	0.0	1.000	45	0.089	0.288	0.0	1.000	0.316	0.89	97	0.373
F D LISC	18	0.722	0.461	0.0	1.000	18	0.833	0.383	0.0	1.000	0.424	-0.79	34	0.437
# SERVCS	54	1.537	1.551	0.0	7.000	44	1.682	1.596	0.0	6.000	1.571	-0.45	96	0.651

KEY:
- C1 GRADS - Cohort 1 (i.e., entry into program in 1972 or 1973) program graduates.
- C1 CNTLS - Cohort 1 controls.
- MTR AGE - Mother's age at time of entry into program.
- SEX 1M2F - Sex of target child (1 = male, 2 = female).
- # O CHDN - Number of children other than the target child in the family.
- HEAD HS - Head of household (1 = mother, 2 = father, 3 = other adult); mean score for this item is not meaningful and should be disregarded.
- # RSDNTS - Number of people in household.
- # POSSNS - Number of family possessions from a nine-point checklist (e.g., telephone, television, encyclopedia).
- HOMETYPE - Type of housing (1 = public, 2 = private)
- RMS/PRSN - Crowding index; number of rooms in house/number of people in household.
- MOS ADDR - Number of months at present address; if over 99, it was set equal to 99.
- M EMPLYD - Mother employed (0 = no, 1 = yes); employment at the PCDC did not count.
- A EMPLYD - Any member of family employed (0 = no, 1 = yes).
- TOT INCM - Total family income from all sources.
- INCM/PRN - Per capita income.
- M EDUCTN - Mother's education; highest grade reached.
- F EDUCTN - Father's education; highest grade reached.
- M R/VOTE - Mother registered to vote (0 = no, 1 = yes).
- F R/VOTE - Father registered to vote (0 = no, 1 = yes).
- M D LISC - Mother has a driver's license (0 = no, 1 = yes).
- F D LISC - Father has a driver's license (0 = no, 1 = yes).
- # SERVCS - Number of community services used from a list of 19.

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Table 5

Entry Characteristics of Families Remaining in the Sample at Child-Age 72-Months

	C1 GRADS					C1 CNTLS							
	N	MEAN	SD(N-1)	MIN	MAX	N	MEAN	SD(N-1)	MIN	MAX	POOL SD	T	DF	P
MTR AGE	37	22.659	5.675	15.000	35.083	34	23.191	4.826	13.750	40.667	5.286	-0.40	69	0.691
SEX 1M2F	37	1.432	0.502	1.000	2.000	34	1.412	0.500	1.000	2.000	0.501	0.17	69	0.863
# O CHDN	37	1.081	1.552	0.0	6.000	34	1.176	1.336	0.0	4.000	1.453	-0.28	69	0.783
HEAD HS	36	2.028	0.810	1.000	3.000	33	2.121	0.781	1.000	3.000	0.796	-0.49	67	0.628
# RSDNTS	35	5.257	2.513	3.000	15.000	33	5.606	2.344	3.000	12.000	2.433	-0.59	66	0.556
# POSSNS	35	4.114	1.762	1.000	8.000	33	4.121	1.691	2.000	8.000	1.728	-0.02	66	0.987
HOMETYPE	36	1.194	0.401	1.000	2.000	33	1.212	0.415	1.000	2.000	0.409	-0.18	67	0.858
RMS/PRSN	36	1.076	0.414	0.400	2.333	33	1.017	0.415	0.417	2.667	0.414	0.59	67	0.555
MOS ADDR	36	33.250	33.779	2.000	99.000	33	27.485	25.069	1.000	99.000	29.937	0.80	67	0.427
M EMPLYD	25	0.080	0.277	0.0	1.000	30	0.133	0.346	0.0	1.000	0.316	-0.62	53	0.536
A EMPLYD	31	0.581	0.502	0.0	1.000	31	0.710	0.461	0.0	1.000	0.482	-1.05	60	0.296
TOT INCM	37	3807.243	2002.312	852.000	9168.000	33	3764.364	2730.737	0.0	11180.000	2373.118	0.08	68	0.940
INCM/PRN	35	837.041	492.891	228.000	1993.333	33	739.008	622.477	0.0	2795.000	559.482	0.72	66	0.473
M EDUCTN	37	10.892	1.430	7.000	12.000	33	11.333	1.362	6.000	14.000	1.398	-1.32	68	0.192
F EDUCTN	14	10.714	3.292	0.0	14.000	14	11.214	1.718	7.000	14.000	2.625	-0.50	26	0.619
M R/VOTE	37	0.378	0.492	0.0	1.000	33	0.394	0.496	0.0	1.000	0.494	-0.13	68	0.896
F R/VOTE	14	0.429	0.514	0.0	1.000	15	0.333	0.488	0.0	1.000	0.500	0.51	27	0.613
M D LISC	37	0.162	0.374	0.0	1.000	33	0.121	0.331	0.0	1.000	0.354	0.48	68	0.631
F D LISC	14	0.571	0.514	0.0	1.000	15	0.867	0.352	0.0	1.000	0.437	-1.82	27	0.080
# SERVCS	37	1.784	1.702	0.0	7.000	32	2.063	1.849	0.0	6.000	1.771	-0.65	67	0.517

KEY:
- C1 GRADS - Cohort 1 (i.e., entry into program in 1972 or 1973) program graduates.
- C1 CNTLS - Cohort 1 controls.
- MTR AGE - Mother's age at time of entry into program.
- SEX 1M2F - Sex of target child (1 = male, 2 = female).
- # O CHDN - Number of children other than the target child in the family.
- HEAD HS - Head of household (1 = mother, 2 = father, 3 = other adult); mean score for this item is not meaningful and should be disregarded.
- # RSDNTS - Number of people in household.
- # POSSNS - Number of family possessions from a nine-point checklist (e.g., telephone, television, encyclopedia).
- HOMETYPE - Type of housing (1 = public, 2 = private)
- RMS/PRSN - Crowding index; number of rooms in house/number of people in household.
- MOS ADDR - Number of months at present address; if over 99, it was set equal to 99.
- M EMPLYD - Mother employed (0 = no, 1 = yes); employment at the PCDC did not count.
- A EMPLYD - Any member of family employed (0 = no, 1 = yes).
- TOT INCM - Total family income from all sources.
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- M EDUCTN - Mother's education; highest grade reached.
- F EDUCTN - Father's education; highest grade reached.
- M R/VOTE - Mother registered to vote (0 = no, 1 = yes).
- F R/VOTE - Father registered to vote (0 = no, 1 = yes).
- M D LISC - Mother has a driver's license (0 = no, 1 = yes).
- F D LISC - Father has a driver's license (0 = no, 1 = yes).
- # SERVCS - Number of community services used from a list of 19.

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that included only children who had complete IQ data at 36, 48, and 60 months. For the group of 53 program children, mean IQ's were 98.64, 99.47 and 94.15 at 36, 48 and 60 months respectively. For the group of 46 control children with complete longitudinal data, the comparable means were 91.33, 95.24, and 93.54.

Birmingham Demographic Questionnaire results. The Birmingham Demographic Questionnaire was designed primarily as a demographic description of the sample and not as a sensitive measure of program effects. It is included here because it provides some data on possible gross impacts on family functioning during the follow-up period. For example, if PCDC mothers sought additional schooling or outside employment after their PCDC experience, or if they became more interested in politics as indexed by registering to vote, it would be reflected in the Demographic Questionnaire. However, it does not assess the far more subtle, and potentially more important, family interaction and child-rearing practices that might have been influenced by the PCDC. Such analyses must await the administration of a truly comprehensive family interview during a proposed follow-up study.

The entry demographic characteristics were presented in Table 4. Table 6 presents these characteristics during the second year of the program. Note that the per capita income is significantly higher in the program group, reflecting the payment made to mothers for their PCDC participation.

Table 7 presents the demographic information one year after graduation (child age 48 months), and Table 8 presents the comparable results for three years after graduation. Note that the per capita income in the two

Table 6

Demographic Characteristics During Second Program Year

	C1 GRADS					C1 CNTLS							
	N	MEAN	SD(N-1)	MIN	MAX	N	MEAN	SD(N-1)	MIN	MAX	POOL SD	T	DF	P
MTR AGE	47	22.152	5.072	15.000	35.083	35	22.879	4.656	16.417	40.667	4.899	-0.66	80	0.509
SEX 1M2F	47	1.511	0.505	1.000	2.000	35	1.371	0.490	1.000	2.000	0.499	1.25	80	0.215
# O CHDN	47	1.213	1.488	0.0	6.000	35	1.429	1.357	0.0	5.000	1.434	-0.67	80	0.502
HEAD HS	47	1.723	0.743	1.000	3.000	35	1.857	0.810	1.000	3.000	0.772	-0.78	80	0.440
# RSDNTS	45	4.311	1.975	2.000	11.000	34	5.118	1.771	1.000	9.000	1.890	-1.88	77	0.064
# POSSNS	47	4.809	1.789	1.000	8.000	35	4.571	1.441	2.000	8.000	1.650	0.64	80	0.522
HOMETYPE	47	1.426	0.500	1.000	2.000	35	1.257	0.443	1.000	2.000	0.477	1.58	80	0.118
RMS/PRSN	47	1.384	0.603	0.545	3.000	34	1.391	0.944	0.571	5.000	0.764	-0.04	79	0.968
MOS ADDR	47	37.511	33.658	1.000	99.000	35	34.686	27.139	2.000	99.000	31.180	0.41	80	0.686
M EMPLYD	10	0.0	0.0	0.0	0.0	31	0.387	0.495	0.0	1.000	0.434	-2.45	39	0.019
A EMPLYD	30	0.733	0.450	0.0	1.000	35	0.686	0.471	0.0	1.000	0.461	0.41	63	0.680
TOT INCM	47	6007.064	3171.821	1888.000	15392.000	35	4750.971	3231.924	720.000	15080.000	3197.503	1.76	80	0.082
INCM/PRN	45	1562.817	938.104	334.286	5130.664	34	907.890	536.103	171.429	2115.000	791.236	3.64	77	0.000
M EDUCTN	47	11.255	1.293	8.000	14.000	35	11.314	1.255	9.000	14.000	1.277	-0.21	80	0.837
F EDUCTN	18	11.944	1.259	9.000	15.000	12	11.667	1.371	9.000	14.000	1.304	0.57	28	0.572
M R/VOTE	47	0.574	0.500	0.0	1.000	35	0.457	0.505	0.0	1.000	0.502	1.05	80	0.299
F R/VOTE	19	0.526	0.513	0.0	1.000	12	0.583	0.515	0.0	1.000	0.514	-0.30	29	0.766
M D LISC	47	0.234	0.428	0.0	1.000	35	0.200	0.406	0.0	1.000	0.419	0.36	80	0.717
F D LISC	19	0.895	0.315	0.0	1.000	12	0.917	0.289	0.0	1.000	0.305	-0.19	29	0.847
# SERVCS	47	0.915	1.558	0.0	9.000	35	1.286	1.487	0.0	6.000	1.528	-1.09	80	0.280

KEY: C1 GRADS - Cohort 1 (i.e., entry into program in 1972 or 1973) program graduates.
C1 CNTLS - Cohort 1 controls.
MTR AGE - Mother's age at time of entry into program.
SEX 1M2F - Sex of target child (1 = male, 2 = female).
O CHDN - Number of children other than the target child in the family.
HEAD HS - Head of household (1 = mother, 2 = father, 3 = other adult); mean score for this item is not meaningful and should be disregarded.
RSDNTS - Number of people in household.
POSSNS - Number of family possessions from a nine-point checklist (e.g., telephone, television, encyclopedia).
HOMETYPE - Type of housing (1 = public, 2 = private)
RMS/PRSN - Crowding index; number of rooms in house/number of people in household.
MOS ADDR - Number of months at present address; if over 99, it was set equal to 99.
M EMPLYD - Mother employed (0 = no, 1 = yes); employment at the PCDC did not count.
A EMPLYD - Any member of family employed (0 = no, 1 = yes).
TOT INCM - Total family income from all sources.
INCM/PRN - Per capita income.
M EDUCTN - Mother's education; highest grade reached.
F EDUCTN - Father's education; highest grade reached.
M R/VOTE - Mother registered to vote (0 = no, 1 = yes).
F R/VOTE - Father registered to vote (0 = no, 1 = yes).
M D LISC - Mother has a driver's license (0 = no, 1 = yes).
F D LISC - Father has a driver's license (0 = no, 1 = yes).
SERVCS - Number of community services used from a list of 19.

Table 7

Demographic Characteristics at Child-Age 48-Months

	C1 GRADS					C1 CNTLS							
	N	MEAN	SD(N-1)	MIN	MAX	N	MEAN	SD(N-1)	MIN	MAX	POOL SD	T	DF	P
MTR AGE	45	22.063	5.262	15.000	35.083	36	22.796	5.082	13.750	40.667	5.183	-0.63	79	0.529
SEX 1M2F	45	1.444	0.503	1.000	2.000	36	1.472	0.506	1.000	2.000	0.504	-0.25	79	0.806
# O CHDN	45	1.200	1.502	0.0	6.000	36	1.500	1.363	0.0	5.000	1.442	-0.93	79	0.355
HEAD HS	45	1.933	0.809	1.000	3.000	36	1.722	0.779	1.000	3.000	0.796	1.19	79	0.239
# RSDNTS	45	4.933	2.016	2.000	10.000	36	4.722	1.921	2.000	9.000	1.975	0.48	79	0.634
# POSSNS	45	5.267	1.912	1.000	9.000	36	4.361	1.885	1.000	9.000	1.900	2.13	79	0.036
HOMETYPE	45	1.444	0.503	1.000	2.000	36	1.389	0.494	1.000	2.000	0.499	0.50	79	0.620
RMS/PRSN	45	1.586	0.784	0.500	4.000	36	1.343	0.714	0.500	4.000	0.754	1.44	79	0.154
MOS ADDR	45	44.156	30.017	5.000	99.000	36	44.472	28.117	1.000	99.000	29.190	-0.05	79	0.961
M EMPLYD	40	0.325	0.474	0.0	1.000	34	0.412	0.500	0.0	1.000	0.486	-0.77	72	0.447
A EMPLYD	44	0.636	0.487	0.0	1.000	35	0.571	0.502	0.0	1.000	0.494	0.58	77	0.563
TOT INCM	45	5638.044	3746.776	0.0	14040.000	36	5876.778	5917.085	0.0	30160.000	4830.157	-0.22	79	0.826
INCM/PRN	45	1221.152	852.889	0.0	3120.000	36	1224.505	1190.408	0.0	6032.000	1016.347	-0.01	79	0.988
M EDUCTN	45	11.467	1.290	9.000	14.000	36	11.528	1.844	8.000	16.000	1.560	-0.18	79	0.861
F EDUCTN	17	11.941	1.249	9.000	15.000	12	11.417	1.311	9.000	14.000	1.275	1.09	27	0.285
M R/VOTE	45	0.644	0.484	0.0	1.000	36	0.500	0.507	0.0	1.000	0.494	1.31	79	0.195
F R/VOTE	17	0.529	0.514	0.0	1.000	12	0.500	0.522	0.0	1.000	0.518	0.15	27	0.881
M D LISC	45	0.333	0.477	0.0	1.000	36	0.278	0.454	0.0	1.000	0.467	0.53	79	0.596
F D LISC	17	1.000	0.0	1.000	1.000	12	1.000	0.0	1.000	1.000	0.0	0.0	27	1.000
# SERVCS	45	1.711	1.532	0.0	7.000	36	1.833	1.920	0.0	10.000	1.715	-0.32	79	0.751

KEY: C1 GRADS - Cohort 1 (i.e., entry into program in 1972 or 1973) program graduates.
C1 CNTLS - Cohort 1 controls.
MTR AGE - Mother's age at time of entry into program.
SEX 1M2F - Sex of target child (1 = male, 2 = female).
O CHDN - Number of children other than the target child in the family.
HEAD HS - Head of household (1 = mother, 2 = father, 3 = other adult); mean score for this item is not meaningful and should be disregarded.
RSDNTS - Number of people in household.
POSSNS - Number of family possessions from a nine-point checklist (e.g., telephone, television, encyclopedia).
HOMETYPE - Type of housing (1 = public, 2 = private)
RMS/PRSN - Crowding index; number of rooms in house/number of people in household.
MOS ADDR - Number of months at present address; if over 99, it was set equal to 99.
M EMPLYD - Mother employed (0 = no, 1 = yes); employment at the PCDC did not count.
A EMPLYD - Any member of family employed (0 = no, 1 = yes).
TOT INCM - Total family income from all sources.
INCM/PRN - Per capita income.
M EDUCTN - Mother's education; highest grade reached.
F EDUCTN - Father's education; highest grade reached.
M R/VOTE - Mother registered to vote (0 = no, 1 = yes).
F R/VOTE - Father registered to vote (0 = no, 1 = yes).
M D LISC - Mother has a driver's license (0 = no, 1 = yes).
F D LISC - Father has a driver's license (0 = no, 1 = yes).
SERVCS - Number of community services used from a list of 19.

Table 8

Demographic Characteristics at Child-Age 72-Months

	C1 GRADS					C1 CNTLS							
	N	MEAN	SD(N-1)	MIN	MAX	N	MEAN	SD(N-1)	MIN	MAX	POOL SD	T	DF	P
MTR AGE	20	22.833	5.959	15.333	35.083	20	24.137	5.431	13.750	40.667	5.701	-0.72	38	0.474
SEX 1M2F	20	1.500	0.513	1.000	2.000	20	1.400	0.503	1.000	2.000	0.508	0.62	38	0.537
# O CHDN	20	1.650	1.565	0.0	5.000	20	1.700	1.658	0.0	5.000	1.612	-0.10	38	0.922
HEAD HS	20	1.700	0.733	1.000	3.000	20	1.400	0.681	1.000	3.000	0.707	1.34	38	0.188
# RSDNTS	20	4.550	1.191	2.000	7.000	20	4.550	1.605	2.000	8.000	1.413	0.0	38	1.000
# POSSNS	20	5.300	1.658	3.000	8.000	20	4.950	2.139	1.000	8.000	1.914	0.58	38	0.566
HOMETYPE	20	1.400	0.503	1.000	2.000	20	1.400	0.503	1.000	2.000	0.503	0.0	38	1.000
RMS/PRSN	20	1.439	0.848	0.667	4.000	20	1.417	0.966	0.500	4.000	0.909	0.08	38	0.940
MOS ADDR	20	49.900	27.342	1.000	84.000	20	46.850	34.281	2.000	99.000	31.006	0.31	38	0.757
M EMPLYD	20	0.400	0.503	0.0	1.000	20	0.500	0.513	0.0	1.000	0.508	-0.62	38	0.537
A EMPLYD	20	0.600	0.503	0.0	1.000	20	0.650	0.489	0.0	1.000	0.496	-0.32	38	0.752
TOT INCM	20	7975.000	5186.922	1068.000	16640.000	20	6680.800	5877.899	1416.000	23920.000	5543.188	0.74	38	0.465
INCM/PRN	20	1855.418	1298.280	267.000	4160.000	20	1518.433	1344.151	354.000	5980.000	1321.415	0.81	38	0.425
M EDUCTN	20	12.100	1.373	10.000	16.000	20	12.350	1.694	10.000	16.000	1.542	-0.51	38	0.611
F EDUCTN	8	12.125	0.354	12.000	13.000	5	11.600	1.517	9.000	13.000	0.957	0.96	11	0.357
M R/VOTE	20	0.800	0.410	0.0	1.000	19	0.684	0.478	0.0	1.000	0.444	0.81	37	0.421
F R/VOTE	8	0.625	0.518	0.0	1.000	5	1.000	0.0	1.000	1.000	0.413	-1.59	11	0.139
M D LISC	20	0.600	0.503	0.0	1.000	20	0.350	0.489	0.0	1.000	0.496	1.59	38	0.119
F D LISC	8	0.875	0.354	0.0	1.000	5	1.000	0.0	1.000	1.000	0.282	-0.78	11	0.453
# SERVCS	20	2.100	1.917	0.0	6.000	20	2.300	2.029	0.0	8.000	1.974	-0.32	38	0.750

KEY: C1 GRADS - Cohort 1 (i.e., entry into program in 1972 or 1973) program graduates.
C1 CNTLS - Cohort 1 controls.
MTR AGE - Mother's age at time of entry into program.
SEX 1M2F - Sex of target child (1 = male, 2 = female).
O CHDN - Number of children other than the target child in the family.
HEAD HS - Head of household (1 = mother, 2 = father, 3 = other adult); mean score for this item is not meaningful and should be disregarded.
RSDNTS - Number of people in household.
POSSNS - Number of family possessions from a nine-point checklist (e.g., telephone, television, encyclopedia).
HOMETYPE - Type of housing (1 = public, 2 = private)
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MOS ADDR - Number of months at present address; if over 99, it was set equal to 99.
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M R/VOTE - Mother registered to vote (0 = no, 1 = yes).
F R/VOTE - Father registered to vote (0 = no, 1 = yes).
M D LISC - Mother has a driver's license (0 = no, 1 = yes).
F D LISC - Father has a driver's license (0 = no, 1 = yes).
SERVCS - Number of community services used from a list of 19.

groups is now nearly identical. Number of possessions (assessed one year after graduation) is the only score showing significant group differences. Picking one "significant" score out of a large group of t tests should be used only for hypothesis generation and not hypothesis testing. If this pattern were confirmed with other cohorts, it could represent an important program effect. More detailed analyses will be necessary to find out if a particular type of possession is involved that could have important consequences for later development. For example, might mothers who are PCDC graduates be more likely to buy books for their children? However, note that by child-age 72 months, this score no longer discriminates the groups.

New Orleans Analyses

Sample. Data from three New Orleans cohorts are available for the current long-term analysis. Cohort 1 is the pilot cohort that entered the program in 1971. Cohort 2 entered in 1972. Because of a variety of complications, a 1973 cohort never existed. The next cohort, entering in early 1975, was labeled Cohort 4.

Stanford-Binet results. As in Birmingham, the 1960 Stanford-Binet norms were used. Results for Cohort 1 are summarized in Table 9.

Cohort 1, the pilot cohort, failed to show significant program effects even at graduation, and there is no evidence to suggest any sleeper effects over the term of the evaluation. Note, too, however, that sample sizes were greatly reduced past the 48-month data point. It is anticipated that some of the missing children can be located and tested in the proposed follow-up study.

Table 9

Stanford-Binet Scores for New Orleans

Cohort 1

MONTH OF TESTING	NUMBER PROG.	NUMBER CONTROL	MEAN PROG.	MEAN CONTROL	STD. DEVIATION (N-1) PROG.	STD. DEVIATION (N-1) CONTROL	LOW PROG.	LOW CONTROL	HIGH PROG.	HIGH CONTROL	T
36 MONTH	13	16	100.6154	98.8125	14.2743	13.1465	68.0000	71.0000	126.0000	125.0000	0.3535
48 MONTH	14	16	99.5714	103.6250	16.4958	11.6555	76.0000	83.0000	127.0000	121.0000	-0.7850
60 MONTH	7	8	96.5714	99.7500	18.6624	11.9054	71.0000	80.0000	132.0000	114.0000	-0.3987
72 MONTH	6	4	101.0000	102.7500	15.7734	8.9582	81.0000	94.0000	128.0000	115.0000	-0.1990
84 MONTH	5	5	99.8000	95.6000	15.2709	6.4265	79.0000	89.0000	119.0000	103.0000	0.5668

Results for Cohort 2 are summarized in Table 10. This cohort showed a highly significant program effect at 36 months that was maintained through 48 months. However, by 60 months, the IQ difference was reduced to a nonsignificant 2 points. As in Birmingham, the absolute score level in the control group starts low, increases slightly, then drops down again while there is a more consistent decline in the IQ scores of the program group. Future analyses may indicate some cause for the apparent increase in the control group IQ between 48 and 60 months, one which may be related to Head Start or other preschool programs.

Differential attrition cannot explain the reduced differences over time. When only children who had scores at both 36 and 60 months were included in the analysis, the mean IQ score for the 10 children in the program group went from 111.00 at 36 months to 106.00 at 60 months. For the 13 children in the control group the mean IQ went from 98.23 at 36 months to 104.23 at 60 months.

Conclusions

The notion that early childhood programs for the economically disadvantaged could provide a permanent inoculation against later cognitive deficits has been generally discredited. The current results suggest that even an intensive program that starts within a year of the birth of the target child and focuses on parenting does not provide such an inoculation. Although these results are disappointing, the possibility of long-term benefits to both mothers and children outside of the "general cognitive ability" area has certainly not been ruled out.

Table 10

Stanford-Binet Scores for New Orleans

Cohort 2

MONTH OF TESTING	NUMBER		MEAN		STD. DEVIATION (N-1)		LOW		HIGH		
	PROG.	CONTROL	PROG.	CONTROL	PROG.	CONTROL	PROG.	CONTROL	PROG.	CONTROL	T
36 MONTH	14	19	109.1429	97.6842	10.4939	11.6955	96.0000	75.0000	136.0000	116.0000	3.0685
48 MONTH	8	14	109.3750	96.6429	10.3914	14.9183	90.0000	71.0000	123.0000	121.0000	2.1268
60 MONTH	10	13	106.0000	104.2308	9.0308	8.5644	93.0000	87.0000	125.0000	118.0000	0.4791
72 MONTH	6	13	99.5000	103.0769	9.8336	10.6651	82.0000	88.0000	110.0000	124.0000	-0.6950
84 MONTH	5	8	99.4000	95.6250	8.0187	8.0700	89.0000	83.0000	107.0000	106.0000	0.8224

Nor is it clear how later experiences (e.g., Head Start) may build on what was accomplished in the PCDC and possibly strengthen the effects. Other moderator variables (e.g., the birth order or sex of the target child) may also modify the general conclusions. These issues will be explored more fully in an in-depth analysis currently being conducted. The proposed long-term follow-up study must be especially sensitive to the multiple dimensions of social competence of mothers and children that cannot be assessed with IQ scores.

Changes in Program Effectiveness Over Time

One of the key questions in any ongoing program is whether the program effects noted in early cohorts could be replicated in later cohorts when initial enthusiasm may start to wane.

Birmingham Analyses

Stanford-Binet results. Results for the first cohort (entry in 1972 or 1973) were presented in Table 3. Results for children who entered the program in 1974 or 1975 are presented in Table 11. The four-point mean program-control difference (97.5 vs. 93.4) at 36 months was only half as large as the difference in the first cohort (98.4 vs. 90.3), and it was not statistically significant. However, in a 2 (cohort) x 2 (program vs. control) ANOVA the interaction was not significant ($E[1,144] = .98$, $p = .32$).

Mother-child interaction results. The Birmingham mother-child interaction tasks yield literally dozens of separate scores. Comprehensive analyses currently under way are investigating various multivariate

Table 11

Stanford-Binet Scores for Birmingham

Cohort 2

MONTH OF TESTING	NUMBER PROG.	NUMBER CONTROL	MEAN PROG.	MEAN CONTROL	STD. DEVIATION (N-1) PROG.	STD. DEVIATION (N-1) CONTROL	LOW PROG.	LOW CONTROL	HIGH PROG.	HIGH CONTROL	T
30 M	23	25	98.5217	94.8000	10.1975	11.1467	86.0000	77.0000	123.0000	125.0000	1.2035
36 M	22	25	97.5455	93.4000	12.3548	13.2508	84.0000	72.0000	123.0000	127.0000	1.1044
48 M	16	21	98.3750	96.8571	10.7510	13.2374	80.0000	70.0000	121.0000	127.0000	0.3739
60 M	9	11	92.7778	91.0909	9.0661	13.9460	80.0000	65.0000	112.0000	116.0000	0.3121
72 M	0	0	0.0	0.0	0.0	0.0	********	********	********	********	0.0
84 M	0	0	0.0	0.0	0.0	0.0	********	********	********	********	0.0

procedures for combining these scores. For the present analysis, two theoretically important scores were selected that showed significant program-control differences for the first cohort. The first of these scores was a rating on a five-point scale of the quality of the mother's instructions to her child in the structured teaching task. In this task the mother is asked to teach her child to sort objects by shape and by color. The six minutes of interaction are recorded on video tape for later coding. A rating of 1 indicated no useful information; for a rating of 3, the mother needed to include some labeling and other types of instructions (e.g., "put the cars in this circle"); a rating of 5 was reserved for clear, well-timed, and specific instructions which included the names of the sorting categories. Separate ratings were made on a five-point scale for each of six minutes in the observation period. These six ratings were then averaged. Analyses of the ratings are presented in Table 12. Results for the 1972-1973 cohort are at the top of the page, and results for the 1974-1975 cohort are at the bottom. Although the results for the first cohort are statistically significant while the results for the second cohort are not, the differences between program and control means in the two cohorts are nearly identical. This slightly anomalous result can be explained by the substantially smaller sample sizes in the second cohort.

Table 13 presents similar ratings for the mother's use of praise in the teaching situation. In both cohorts, mean scores are quite low (the lowest possible score is 1.00), but there are also significant

Table 12

Rating of Quality of Mother's Instructions in Birmingham Structured Teaching Task

Cohort 1

MONTH OF TESTING	NUMBER PROG.	NUMBER CONTROL	MEAN PROG.	MEAN CONTROL	STD. DEVIATION (N-1) PROG.	STD. DEVIATION (N-1) CONTROL	LOW PROG.	LOW CONTROL	HIGH PROG.	HIGH CONTROL	T
24 MONTH	32	18	3.2675	2.4717	0.6485	1.0168	1.8300	1.0000	4.5000	4.3300	3.3823
30 MONTH	44	23	3.1193	2.6091	0.8611	0.9826	1.6700	1.0000	5.0000	4.5000	2.1932
36 MONTH	48	36	3.0544	2.4867	0.7109	1.0176	1.8300	1.0000	4.5000	4.6700	3.0103
48 MONTH	48	44	3.5202	2.8470	0.9689	0.9907	1.0000	1.0000	5.0000	5.0000	3.2933

Cohort 2

MONTH OF TESTING	NUMBER PROG.	NUMBER CONTROL	MEAN PROG.	MEAN CONTROL	STD. DEVIATION (N-1) PROG.	STD. DEVIATION (N-1) CONTROL	LOW PROG.	LOW CONTROL	HIGH PROG.	HIGH CONTROL	T
24 MONTH	23	24	2.9235	2.6183	0.5899	0.9399	1.8300	1.0000	4.0000	4.0000	1.3264
30 MONTH	23	25	3.0100	2.8068	0.9240	1.1720	1.1700	1.0000	4.6700	4.6700	0.6631
36 MONTH	22	25	3.1795	2.6704	0.9512	0.9619	1.0000	1.0000	4.5000	4.3300	1.8201
48 MONTH	16	19	3.3737	2.9568	0.9436	0.9951	1.0000	1.3300	4.8300	4.4000	1.2640

Table 13

Rating of Mother's Use of Praise in Birmingham Structured Teaching Task

Cohort 1

MONTH OF TESTING	NUMBER PROG.	NUMBER CONTROL	MEAN PROG.	MEAN CONTROL	STD. DEVIATION (N-1) PROG.	STD. DEVIATION (N-1) CONTROL	LOW PROG.	LOW CONTROL	HIGH PROG.	HIGH CONTROL	T
24 MONTH	32	18	1.7972	1.2128	0.7058	0.3272	1.0000	1.0000	3.6700	2.0000	3.3078
30 MONTH	44	23	1.8120	1.3913	0.6138	0.5507	1.0000	1.0000	2.8300	3.3300	2.7564
36 MONTH	48	36	2.0990	1.6444	0.7027	0.6018	1.0000	1.0000	3.8300	2.8400	3.1162
48 MONTH	48	44	2.0125	1.5189	0.9819	0.4919	1.0000	1.0000	5.0000	2.6700	3.0059

Cohort 2

MONTH OF TESTING	NUMBER PROG.	NUMBER CONTROL	MEAN PROG.	MEAN CONTROL	STD. DEVIATION (N-1) PROG.	STD. DEVIATION (N-1) CONTROL	LOW PROG.	LOW CONTROL	HIGH PROG.	HIGH CONTROL	T
24 MONTH	23	24	1.6652	1.2912	0.6448	0.4082	1.0000	1.0000	3.6700	2.8300	2.3864
30 MONTH	23	25	1.4857	1.2656	0.4247	0.3145	1.0000	1.0000	2.3300	2.0000	2.0512
36 MONTH	22	25	1.8955	1.4244	0.5689	0.6427	1.0000	1.0000	3.5000	4.0000	2.6443
48 MONTH	16	19	1.9031	1.4426	0.7741	0.3897	1.0000	1.0000	3.4000	2.4000	2.2772

program-control differences in both cohorts. Note also that in both cohorts, differences are about as large one year after program graduation as they were at 36 months. Unfortunately, these ratings were not made past 48 months, hence comparisons with the long-term decline in the program-control IQ differential are not possible.

New Orleans Analyses

Stanford-Binet results. Cohort 2 results were presented in Table 4. Cohort 4 results (recall that there was no Cohort 3) are presented in Table 14. Instead of the thirteen-point IQ differential noted in Cohort 2, there was only a nonsignificant difference of less than three points. This apparently reduced effect is consistent with information about changes in the quality of the program from Cohort 2 to Cohort 4. Several of the key staff members who were major contributors to the development of the model were no longer actively involved with Cohort 4. There was also some evidence of dissension among the remaining staff members. In the more intensive analyses planned for this year, these possible changes in program quality need to be more fully documented through interviews with site staff. It also must be noted that the 2 (cohort) x 2 (program vs. control) ANOVA was not significant ($F[1,67] = 2.35$, $p = .13$). The mother-child interactions for Cohort 4, which are currently being scored, also may be crucial in determining whether the apparent loss of program effectiveness was genuine.

Conclusions

The possible changes in program effectiveness over time need to be confirmed with more tightly controlled multivariate covariance analyses

Table 14

Stanford-Binet Scores for New Orleans

Cohort 4

MONTH OF TESTING	NUMBER PROG.	NUMBER CONTROL	MEAN PROG.	MEAN CONTROL	STD. DEVIATION (N-1) PROG.	STD. DEVIATION (N-1) CONTROL	LOW PROG.	LOW CONTROL	HIGH PROG.	HIGH CONTROL	T
36 MONTH	22	16	102.0455	98.6250	8.9575	11.8579	84.0000	77.0000	114.0000	123.0000	0.7927
48 MONTH	20	12	100.7500	96.4167	7.5941	10.0223	84.0000	83.0000	117.0000	117.0000	1.3856

that will simultaneously consider additional independent and dependent variables. It cannot be assumed that programs that are initially found to be effective will maintain that effectiveness. Similarly, programs that are initially relatively ineffective may improve over time. More complex relationships may evolve as program emphases are changed over time. Outcome measures that had shown strong effects may show reduced effects, while new significant effects emerge on other measures. Even the limited data presented here underscore the importance of efforts to monitor program processes and outcomes over an extended period of time.

The changes over time that were observed seem to be more related to changes in the quality and enthusiasm of center staff members than to changes in written descriptions of key model features (e.g., number of classroom contact hours per week). Faithful replication of "key model features" (whether within a site over time or across sites) is probably less important in replicating outcomes than is consistently maintaining a high quality staff.

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